

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-18 (cancelled).

19 (currently amended): A rechargeable lithium ion battery, comprising:

(a) a positive electrode comprising:

a collecting electrode; and

an active material layer formed on the collecting electrode,

the active material layer containing particles of a positive electrode active material within a prescribed particle size range,

the active material layer having a layer thickness within a prescribed layer thickness range,

the active material layer ~~having a local porosity thereof changed along a direction of the layer thickness comprising~~

a first active material layer having a first porosity within a first porosity range, and

a second active material layer having a second porosity within a second porosity range higher than the first porosity range;

(b) a negative electrode; and

(c) a non-aqueous electrolytic solution.

20 (currently amended): The rechargeable lithium ion battery as claimed in claim 19,
wherein ~~the active material layer has the local porosity changed stepwise~~ the first porosity range
is apart from the second porosity range.

21 (currently amended): The rechargeable lithium ion battery as claimed in claim 20,
wherein the active material layer comprises ~~a plurality of coated active material layers having~~
~~porosities thereof changed from each other~~ another active material layer having a porosity within
a porosity range different from the first and second porosity ranges.

22 (cancelled)

23 (currently amended): The rechargeable lithium ion battery as claimed in claim 22,
wherein the first active material layer is closer to the collecting electrode than the second active
material layer, and the first porosity range is lower than the second porosity range.

24 (previously presented): The rechargeable lithium ion battery as claimed in claim 23,
wherein

the first active material layer comprises particles of the positive electrode active material
having a first average particle size, and

the second active material layer comprises particles of the positive electrode active
material having a second average particle size identical to the first average particle size.

25 (previously presented): The rechargeable lithium ion battery as claimed in claim 23,
wherein

the first active material layer comprises particles of the positive electrode active material
having a first average particle size, and

the second active material layer comprises particles of the positive electrode active material having a second average particle size different from the first average particle size.

26 (previously presented): The rechargeable lithium ion battery as claimed in claim 19, wherein the active material layer has an average porosity thereof adjusted within a prescribed average porosity range.

27 (currently amended): The rechargeable lithium ion battery as claimed in claim 26, wherein the ~~prescribed~~ average porosity range is set within a range of 50% or more.

28 (currently amended): The rechargeable lithium ion battery as claimed in claim 27, wherein the ~~prescribed~~ average porosity range is set within a range of 50% to 60%.

29 (currently amended): The rechargeable lithium ion battery as claimed in claim 27, wherein the ~~prescribed~~ particle size range is set within a range of 5 μm or less in terms of an average particle diameter.

30 (currently amended): The rechargeable lithium ion battery as claimed in claim 29, wherein the ~~prescribed~~ layer thickness range is set within a range of 20 μm to 80 μm .

31 (currently amended): The rechargeable lithium ion battery as claimed in claim 30, wherein the ~~prescribed~~ layer thickness range is set within a range of 20 – 30 μm .

32 (currently amended): The rechargeable lithium ion battery as claimed in claim 30, wherein the active material layer comprises:

[[a]] the first active material layer formed with a first thickness on the collecting electrode; and

[[a]] the second active material layer formed with a second thickness on the first active material layer,

the first and second thicknesses are each set within a range of 20 μm to 30 μm ,

the first active material layer has [[a]] the first porosity thereof with within a range of 30% to 50%, and

the second active material layer has [[a]] the second porosity thereof within a range of 50% to 60%.

33 (previously presented): The rechargeable lithium ion battery as claimed in claim 19, wherein the positive electrode active material comprises lithium manganese oxide.

34 (previously presented): The rechargeable lithium ion battery as claimed in claim 19, wherein the non-aqueous electrolytic solution contains a concentration of electrolyte within a range of 1.0 mol/l to 3.0 mol/l.

35 (previously presented): The rechargeable lithium ion battery as claimed in claim 34, wherein the concentration of electrolyte is set within a range of 1.5 mol/l to 2.5 mol/l.

36 (previously presented): The rechargeable lithium ion battery as claimed in claim 19, wherein the non-aqueous electrolytic solution contains an electrolyte comprising one of LiPF₆ and LiBF₄.

37 (previously presented): The rechargeable lithium ion battery as claimed in claim 25, wherein the first and second active material layers have a thickness thereof within a range of 20 μm to 30 μm .

38 (previously presented): The rechargeable lithium ion battery as claimed in claim 37,
wherein

the second active material layer is formed on the first active material layer,

the first average particle size is set within a range of 0.1 μm to 5 μm , and

the second active average particle size is set within a range of 5 μm to 20 μm .

39 (previously presented): A rechargeable lithium ion battery which is capable of being used as an energy source for a vehicle, comprising:

(a) a positive electrode comprising:

a collecting electrode; and

an active material layer which is formed on the collecting electrode, contains a positive electrode active material,

wherein thickness of the active material layer is at a range of 20 – 80 μm ;

particle diameter of the positive electrode active material is 5 μm or less; and

porosity of the active material layer is 50% or more,

wherein the active material layer comprises of a plurality of active material layers having different porosities, and the porosity of the active material layer closer to the collecting electrode is lower than an active material layer further from the collecting electrode;

(b) a negative electrode; and

(c) a non-aqueous electrolytic solution.

40 (currently amended): A rechargeable lithium ion battery which is capable of being used as an energy source for a vehicle, comprising:

(a) a positive electrode comprising:

a collecting electrode; and
an active material layer containing a positive electrode active material, which includes a first active material layer formed on the collecting electrode and a second active material layer formed on the first active material layer, wherein the first and second active material layers each have a thickness within a range of 20 μm to 30 μm ,
a porosity of the first active material layer is 30% or more and less than 50%,
a porosity of the second active material layer is within a range of 50% to 60%,
and
a particle diameter of the positive electrode active material is 5 [[am]] μm or less;

(b) a negative electrode; and
(c) a non-aqueous electrolytic solution.

41 (previously presented): A rechargeable lithium ion battery which is capable of being used as an energy source for a vehicle, comprising:

(a) a positive electrode comprising:
a collecting electrode; and
and active material layer including a first active material layer formed on the collecting electrode and a second active material layer formed on the first active material layer, each of which has a thickness within a range of 20 to 30 μm inclusively, wherein
the first active material layer contains a positive electrode active material having a particle diameter of 0.1 μm or more and less than 5 μm , and
the second active material layer contains a positive electrode active material having a particle diameter within a range of 5 μm to 20 μm ;

- (b) a negative electrode; and
- (c) a non-aqueous electrolytic solution.

42 (new): A rechargeable lithium ion battery comprising:

- (a) a positive electrode comprising:
 - a collecting electrode; and
 - an active material layer formed on the collecting electrode,
 - the active material layer containing particles of a positive electrode active material within a prescribed particle size range,
 - the active material layer having a layer thickness within a prescribed layer thickness range,
 - the active material layer having a local porosity thereof changed along a direction of the layer thickness,
 - wherein the active material layer comprises:
 - a first active material layer formed with a first porosity; and
 - a second active material layer formed with a second porosity changed from the first porosity, wherein
 - the first active material layer is closer to the collecting electrode than the second active material layer, and the first porosity is lower than the second porosity;
- (b) a negative electrode; and
- (c) a non-aqueous electrolytic solution.

43 (new): The rechargeable lithium ion battery as claimed in claim 42, wherein

the first active material layer comprises particles of the positive active material having a first average particle size, and

the second active material comprises particles of the positive electrode material having a second average particle size identical to the first average particle size.

44 (new): The rechargeable lithium ion battery as claimed in claim 42, wherein
the first active material layer comprises particles of the positive electrode active material having a first average particle size, and

the second active material layer comprises particles of the positive electrode active material having a second average particle size different from the first average particle size.

45 (new): The rechargeable lithium ion battery as claimed in claim 44, wherein
the first and second active material layers have a thickness thereof within a range of 20 μm to 30 μm .

46 (new): The rechargeable lithium ion battery as claimed in claim 45, wherein
the second active material layer is formed on the first active material layer,
the first average particle size is set within a range of 0.1 μm to 5 μm , and
the second average particle size is set within a range of 5 μm to 20 μm .

47 (new): A rechargeable lithium ion battery comprising:

(a) a positive electrode comprising

a collecting electrode; and
an active material layer formed on the collecting electrode,
the active material layer containing particles of a positive electrode active material within a prescribed particle size range,
the active material having a layer thickness within a prescribed layer thickness range,

the active material layer having a local porosity thereof changed along a direction of the layer thickness, wherein

the active material layer has an average porosity thereof adjusted within a prescribed average porosity range, wherein

the prescribed average porosity range is set within a range of 50% or more, wherein

the prescribed particle size range is set within a range of 5 µm or less in terms of an average particle diameter, wherein

the prescribed layer thickness range is set within a range of 20 µm to 80 µm, wherein

the active material layer comprises:

a first active material layer formed with a first thickness on the collecting electrode; and

a second active material layer formed with a second thickness on the first active material layer,

the first and second thicknesses are each set within a range of 20 µm to 30 µm,

the first active material layer has a porosity thereof within a range of 30% to 50%, and

the second active material layer has a porosity thereof within a range of 50% to 60%;

(b) a negative electrode; and

(c) a non-aqueous electrolytic solution.